

## **REMARKS**

Claims 1-4 and 11-13 are now pending in the application. Claims 1 and 11 have been amended herein. The basis for this amendment can be found throughout the specifications, claims, and drawings originally filed. No new matter has been added. The preceding amendment and the following remarks are believed to be fully responsive to the outstanding Office Action and are believed to place the application in condition for allowance. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

### **REJECTION UNDER 35 U.S.C. § 103**

Claims 1-4 and 11-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Choi et al (U.S. Pat. No. 6,499,955). This rejection is respectfully traversed.

Applicant respectfully submits that Choi fails to teach or suggest an impeller having a plurality of blades, the blades having a surface defined by an axial direction (Z), a radius (R) defined from said axis of rotation of said hub, and a polar angle ( $\Theta$ ), whereby the polar angle ( $\Theta$ ) is a function of only the radius (R).

The Examiner asserts the claimed blade surface defined by the polar angle ( $\Theta$ ) as a function of the radius (R) appears to form a generally spiral shaped blade surface, therefore the spirally oriented blades disclosed in Choi meet the aforementioned claim limitation. However, while Choi discloses a generally spiral shaped blade surface in Fig. 5, Choi does not disclose that Fig. 5 is to scale and is silent as to any dimensional relationship between the polar angle ( $\Theta$ ), the radius (R), and the axial direction (Z). The

MPEP specifically disallows reliance on reference drawings to show dimensional relationships when the reference does not disclose that the drawing is to scale and is silent as to the dimensions. “[I]t is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is silent on the issue.” MPEP §2125 (citing Hockerson-Halberstadt, Inc. v. Avia Group Int’l, 222 F.3d 951). As such, any interpretation of Choi that would be seen as teaching the claimed blade surface defined by the polar angle ( $\Theta$ ) as a function of the radius ( $R$ ) would impermissibly employ hindsight based on the present disclosure. Therefore, Choi cannot be properly interpreted as teaching the claimed blade surface defined by the polar angle ( $\Theta$ ) as a function of the radius ( $R$ ).

In addition, applicant notes that one of several possible interpretations of the blade surface Choi discloses in Fig. 5 is a blade surface defined by the polar angle ( $\Theta$ ) as a function of both the radius ( $R$ ) and the axial direction ( $Z$ ). In paragraph [0028], applicant has disclosed specific benefits associated with defining the blade surface by the polar angle ( $\Theta$ ) as a function of only the radius ( $R$ ) rather than defining the blade surface by the polar angle ( $\Theta$ ) as a function of both the radius ( $R$ ) and the axial direction ( $Z$ ), including improved manufacturability and impeller performance. Since a blade surface defined by the polar angle ( $\Theta$ ) as a function of the radius ( $R$ ) and the axial direction ( $Z$ ) would not perform as well as a blade surface defined by the polar angle ( $\Theta$ ) as a function of only the radius ( $R$ ), it would not have been an obvious matter of design choice to modify the blade surface of Choi by including the limitation of a blade surface defined by the polar angle ( $\Theta$ ) as a function of the radius ( $R$ ).

Moreover, applicant notes that amended claims 1 and 11 recite an “impeller... [including] a plurality of blades... wherein said impeller is a radial impeller including an inducer formed proximate a leading edge of each blade, said inducer disposed in a plane that extends generally in said axial direction (Z) of each blade...” Choi discloses an impeller including a plurality of blades (Abstract). Choi further discloses an inducer formed proximate a leading edge of each blade, where the inducer is projected along a radius that is coaxial with the impeller (Fig. 5). Choi does not teach or suggest an inducer formed proximate a leading edge of each blade, where the inducer is disposed in a plane that extends generally in said axial direction (Z) of each blade, as claimed.

Accordingly, the prior art fails to teach or suggest all of the limitations of amended claims 1 and 11. Claims 2-4 and claims 12-13 depend from claims 1 and 11, respectively, and should be in condition for allowance for the reasons set forth above. Therefore, reconsideration and withdrawal of the rejection of claims 1-4 and 11-13 are respectfully requested.

**CONCLUSION**

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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Electronic Signature: /Ryan W. Massey/  
Ryan W. Massey, Reg. No. 38,543

CORRESPONDENCE ADDRESS:

Charles Ellerbrock, Esq.  
General Motors Corporation  
Legal Staff - Mail Code 482-C23-B21  
PO Box 300 - 300 Renaissance Center  
Detroit, Michigan 48265-3000  
Ph: 313-665-4717  
Fax: 313-665-4976

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